

New Species of Bat Bugs of the *Cimex pilosellus* Complex

(Hemiptera : Cimicidae)

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For many years North American bat bugs were considered to belong to a single species, *Cimex pilosellus* (Horvath). In 1939 a second species, *Cimex adjunctus* Barber, was recognized with distribution largely in the eastern United States. As a result of experimental crosses and cytogenetic studies (Ueshima, N. 1963, *Chromosoma*, 14: 511–521) it now appears that four additional species should be recognized. Descriptions are given at this time in order to make the names available for a forthcoming monograph. Types are deposited in the United States National Museum.

Cimex latipennis Usinger and Ueshima, new species

FEMALE.—Head 0.76 mm wide, 0.63 mm long, the ratio of width to length 23 : 18; interocular space five times as wide as an eye, 16 : 3. Antennae 1.53 mm long; proportion of segments 5 : 15 : 17 : 12. Rostrum with second segment reaching about to base of head; proportion of segments 7 : 6 : 7.

Pronotum 1.2 mm wide, 0.46 mm long; ratio of width to length 36 : 14; ratio of pronotal width to head with 36 : 23; sides broadly rounded on anterior half, less so posteriorly, subdepressed laterally and subbasally; longest bristles at sides about 0.166 mm, distinctly longer than width of first antennal segment, 5 : 3; bristles on disk fine and much longer than distance between bristles.

Hemelytral pads 1.85 times as wide as long, 25 : 13.5; bristles on disk much longer than distance between bristles.

Abdomen with longest bristles at hind margins of anterior tergites approximately 0.13 mm, exceeding hind margins by three-fourths their lengths. Paragenital sinus very broad and shallow, the ectospermalege transverse and tubular.

Legs with hind femora 2.84 times as long as wide, 27 : 9½. Bristles of hind tibiae shorter than thickness of tibia, 2 : 2½.

MALE.—Like the female but with longest bristles at sides of pronotum slightly shorter and longest bristles of hind tibiae about as long as thickness of tibia.

SIZE.—female, length 5 mm, width (pronotum) 1.2 mm, (abdomen) 2.5 mm; male, length 4.8 mm, width (pronotum) 1.2 mm, (abdomen) 2.2 mm.

Holotype female, allotype male, and eleven paratypes (slide mounted), near KLAMATH LAKE, OREGON. Specimens are also at hand from Vale, Oregon, May 1934, French Glen, Harney Co., Oregon, 14 Aug. 1954 (G. G. Hansen), and Miami Ranger Station, Mariposa Co., Calif., 23 July 1946 (R. L. Usinger). These agree with the types but are not included in the paratype series.

This species is closest to typical *C. pilosellus* but differs in the wider

hemelytral pads, smaller size and distinctive chromosome pattern, the haploid number at second metaphase being $14A + XY$.

***Cimex antennatus* Usinger and Ueshima, new species**

FEMALE.—Head 0.85 mm wide, including eyes; ratio of width to length (excluding labrum) $34 : 28$; width of interocular space 0.65 mm, 6 times as wide as an eye. Antennae 1.7 mm long; proportion of segments $6 : 22 : 23 : 17$. Rostrum 0.75 mm long; second segment reaching hind margin of head; proportion of segments approximately $9 : 8 : 10$.

Pronotum 1.3 mm wide and 0.55 mm long at middle; ratio of width to length $50 : 22$ and ratio of pronotal width to head width $50 : 34$; sides evenly arcuate and narrowly sublaterally depressed; disk with bristles longer than distance between bristles except at middle; side bristles relatively stout, truncate and serrate, the longest 0.31 mm, exceeding width of first antennal segment.

Hemelytral pads nearly twice as wide as long, $37 : 20$; disks with bristles over twice as long as distance between bristles.

Abdomen with bristles of terga about 0.25 mm long, much longer than distances between bristles; posterior rows of bristles exceeding edge by much more than half the length of bristles.

Ectospermalege tubular beneath asymmetrical emargination of hind margin of 4th visible ventral segment.

Legs stout; hind femora 2.5 times as long as wide, $40 : 16$.

MALE.—Like the female but pronotum 1.26 mm wide.

SIZE.—male, length 5.8 mm, width (pronotum) 1.26 mm, (abdomen) 2.6 mm; female, length 5.35 mm, width (pronotum) 1.3 mm, (abdomen) 2.6 mm.

Holotype female, allotype male, and 19 paratypes (slide mounted), POPE VALLEY, CALIFORNIA, ex *Antrozous pallidus* (A. Beck and N. Ueshima). This species has a haploid chromosome count of $11A + XY$. It differs from *C. pilosellus* and *C. adjunctus* in the relatively narrower pronotum. It differs from *C. incrassatus* of Arizona and Southern California in having shorter bristles and less incrassate hind femora.

Additional specimens are at hand as follows: 1 adult and 4 nymphs, San Jose, Calif., 24 April 1942; 1 specimen, near Woodland, Yolo Co., Calif. ex *Tadarida mexicana*; 1 specimen, Alameda Co., Calif., 5 April 1945, ex *Antrozous*, No. AP 21677; 1 specimen, Gualala River, Mendocino Co., Calif. (H. S. Fuller).

***Cimex incrassatus* Usinger and Ueshima, new species**

FEMALE.—Head 0.8 mm wide, 0.625 mm long; ratio of width to length $32 : 25$; interocular space 0.60 mm, six times as wide as an eye. Antennae 1.5 mm long; proportion of segments $6 : 18 : 20 : 16$. Rostrum with second segment not quite reaching hind margin of head; proportion of segments $8 : 8 : 10$.

Pronotum 1.2 mm wide and 0.5 mm long, the ratio $48 : 20$; ratio of pronotal width to head width $48 : 32$; sides slightly more arcuate anteriorly, feebly depressed laterally, the longest side bristles about 0.28 mm, distinctly longer than width of first antennal segment, $23 : 18$, relatively stout and serrate on outer edges; bristles of disk generally longer than distance between bristles except at middle.

Hemelytra nearly twice as wide as long, 36 : 19; disk with bristles generally over twice as long as distance between bristles.

Abdomen with bristles about 0.25 mm, much longer than distance between bristles, the posterior row of bristles on each segment exceeding hind margin by much more than half a bristle length. Ectospermalege tubular beneath the rather broadly and evenly emarginate hind margin of fourth visible ventral segment.

Legs stout; hind femora 2.17 times as long as wide, 37 : 17.

MALE.—Similar to female but with lateral bristles of pronotum somewhat thinner and hind femur 0.40 times as stout as long.

SIZE.—male, length 5.2 mm, width (pronotum) 1.1 mm, (abdomen) 2.49 mm; female, length 5.25 mm, width (pronotum) 1.2 mm, (abdomen) 2.8 mm.

Holotype female, allotype male, and 16 paratypes, ST. DAVID, COCHISE Co., ARIZONA, ex *Eptesicus fuscus* (N. Ueshima). The haploid chromosome complement is 10A + XY at 2nd metaphase.

This species differs from *C. antennatus* not only in number of autosomes but also in the slightly longer bristles, stouter hind femora, and different antennal proportions.

Additional specimens in the U. S. National Museum are: 34 specimens, Mine tunnel, Picacho Peak, Arizona, 24 May 1940 (G. M. Kohls), No. AP17865; 5 specimens, near Red Rock, Picacho Peak, Arizona, 1940, biting *Myotis velifer velifer* (J. Bequaert); 2 specimens, Salt Lake City, Utah, 4 Oct. 1948 (K. R. Kelson) No. 90876; 5 specimens, Vidal, Calif., 7 June 1940 (G. M. Kohls), *Corynorhinus rafinesquii pallescens*, No. AP17886; 2 specimens, Mine tunnel, Laguna Dam, Calif., 21 May 1940 (G. M. Kohls), No. AP17859; Mescal, Arizona, July 1928 (R. H. Beamer); 1 specimen, Mine tunnel, Arivaca, Arizona, 27 May 1940 (G. M. Kohls), No. AP17873; 1 specimen, Nogales, Ariz., 7 Oct. 1940 (Ehinger); 2 specimens, Wilcox, Ariz., 4 Aug. 1909 (A. K. Fisher) from *Antrozous*; 1 specimen, Wilcox, Ariz., July 1961 (C. R. Ash); 4 specimens, Burney Mine Rd., Pinal Co., Ariz., *Eptesicus fuscus* (G. Vr. Bradshaw); 1 specimen, Graham Mtns., Graham Co., Ariz., Aug. 1951, *Myotis*; 1 specimen, Mexico: 9 mi. N. E. Acatzingo, Puebla, 13 Aug. 1954 (A. A. Alcorn), *Eptesicus*; 1 specimen, Santa Catarina, Nueva Leon, Mexico, Apr. 1940 (E. V. Miller) on *Pipistrellus hesperus*; 3 specimens, 8 mi. S. Winkleman, Pinal Co., Arizona, 23 May 1959 (A. Ross) ex *Myotis velifer*; 1 specimen, Willcox, Cochise Co., Ariz., 1 Aug. 1959 (A. Ross) ex *Eptesicus fuscus*; 1 specimen, Madera Canyon, Pima Co., Ariz., 15 April 1959 (A. Ross) ex *Eptesicus fuscus*; 3 specimens under bridge, near Willcox, Cochise Co., Ariz., 30 July 1959 (A. Ross), ex *Antrozous pallidus*; 3 specimens, same data but 10 June 1959 (L. Cockrum) ex *Eptesicus fuscus*; 13 specimens, Willcox, Cochise Co., Ariz., 21 June 1959 (G. Vr. Bradshaw) ex *Eptesicus fuscus*; 3 specimens, White Oak Mine, Walker Canyon, Santa Cruz Co., Ariz., 28 May 1959 (A. Ross) ex *Eptesicus fuscus*; 3 specimens, Hiway Bridge, U. S. 70, 7.3 mi. N. W. of Pima, Arizona, 20 Sept. 1959 (G. Vr. Bradshaw) ex *Myotis yumanensis* No. 1754; 1 specimen, Beehive Mine, Tucson Mt., Pima Co., Ariz., 30 May 1959 (G. Vr. Bradshaw) ex *Myotis velifer*; 1 specimen, Twin Windmills, 5 mi. S. E. Kingman, Mohave Co., Ariz., 11 July 1959 (Wm. Musgrove), ex *Pipistrellus hesperus*; 1 specimen, Panaca, Lincoln Co., Nevada, 2 Sept. 1955 (R. F. Koontz); 2 specimens, Alice Mine, 2 mi. S. W. Vidal, San Bernardino Co., Calif.

Cimex brevis Usinger and Ueshima, new species

FEMALE.—Head 0.675 mm wide, 0.55 mm long; ratio of width to length 27 : 24; interocular space 0.525 mm wide, seven times as wide as an eye. Antennae 1.425 mm; proportion of segments 4 : 18 : 19 : 16. Rostrum with second segment surpassing base of head; proportion of segments 8 : 7 : 8.

Pronotum 1.1 mm wide, 0.45 mm long; ratio of width to length 44 : 18; ratio of pronotal width to head width 44 : 27; sides almost evenly arcuate, subdepressed laterally, the longest bristles at edges 0.437 mm, very thin, twice as long as width of first antennal segment; bristles on disk generally longer than distance between bristles, even at center.

Hemelytra over twice as wide as long, 34 : 14, the disk with bristles generally twice or more as long as distance between bristles.

Abdomen with bristles over 0.25 mm long, those near hind margins of segments surpassing the margin by more than half their length. Ectospermalege widened, the notch in hind margin of fourth visible ventral segment rather narrowly emarginate.

Legs with hind femora slightly more than $2\frac{1}{2}$ times as long as wide, 32 : 12.

MALE.—Like the female but pronotum 42 : 18. Hemelytra twice as wide as long, 32 : 16.

SIZE.—male, length 4.85 mm, width (pronotum) 1.1 mm, (abdomen) 2.2 mm; female, length 4.75 mm, width (pronotum) 1.1 mm, (abdomen) 2.3 mm.

Holotype female, allotype male, and 23 paratypes, STAPLES, MINNESOTA (R. Ryckman) associated with unidentified bat. Haploid chromosome complement at second metaphase, $14A + X_1X_2X_3X_4Y$.

This species is closest to *C. adjunctus* but differs in the long tibial bristles and smaller size.
